DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-002968
Date Inspected: 20-Jun-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name:	Hu Wei Qing and Wu Ming Cai	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☑ Yes ☐ No ☐ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A
Bridge No:	34-0006	**Component:**	OBG and SAS Tower Fabrication

Summary of Items Observed:

On this date, Caltrans Office of Structural Material (OSM) Quality Assurance (QA) Inspector Joselito Lizardo was present as requested to perform observations on the fabrication of Orthotropic Box Girder (OBG) and SAS Tower at Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China.

The QA Inspector has randomly observed the following activities on sub-assembly Bays mentioned below;

Bay 2: 114M Tower Mock-ups, Plate Cutting, Rolling
This QA Inspector observed machining/beveling of 6-22mm thick plates marked FB82A, FB76A, FB73A, FB78A, FB41A and FB87A were seen complete. These plates are intended for floor beam splices. Drilling of 16-24mm diameter bolt holes on 300mm X 300mm hollow steel diagonal brace for floor beam sub-assembly and on 24mm thick connection plate for it still continues. In addition, 1-45mm thick plate marked A6-1 is set at the table getting ready for rolling. There was no Caltrans job at the cutting table and mock up 114M was noted idle.

Bay 3: OBG side/bottom/edge panel:
This QA observed ZPMC/NDE Xu Hai perform 100% MT on the WT(W18x46) rib stiffener of side panel SP470-001-009/010 removal due to twisting of its flange. Electromagnetic Yoke was used with alternating current (AC) as power source. The detection media used was dry yellow ferromagnetic particles and applied with powder blower while the magnetizing force is on and magnetizing force is applied in perpendicular direction (180 degree apart). This QA observed weld removal and ZPMC's conduct of MT on this CWR-114 deemed acceptable.

This QA Inspector observed ZPMC UT personnel Ma Jilong perform UT on flange and web plate splice butt

joints of Bottom Panel WT (W21x57) rib stiffeners BP193-001-001~004, 019~022, BP195-001-001~006, 019~024, BP196-001-001~006, 019~024 and BP194-001-001~006, 019~024.
The QA Inspector randomly observed ZPMC welder operator Li Shu Liang ID Number 048801 utilizing the Flux Cored Arc Welding (FCAW) Process in the 2F (Horizontal Fillet) Position with a 1.4mm diameter electrode, filler metal brand K-71TSR, semi automatic in a gantry mounted welding apparatus and ZPMC Weld Procedure Specification (WPS) WPS-B-T-4132, to weld 0pen-Ribs stiffener to Deck Plate DP033-001 at weld joints 001/002. The QA Inspector randomly observed ZPMC CWI Wu Ming Cai monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 300 amps, 30.0 volts amps. Travel speed was randomly observed at 350 millimeters (mm) per minute. Tack welding/fit-up of 2-open rib stiffener to edge panel EP053-001-003/004 using 4.0mm diameter electrode THJ506Fe and 6 WT(W21x57)rib stiffeners to side panel SP174-001-015/016 and 017/018 using 4.0mm diameter electrode TL-508 by two ZPMC welders this QA also observed.

Drilling of 14-24mm diameter bolt holes on one end of WT(W21X57) rib stiffener web plate and 16-24mm diameter bolt holes on flange of the same stiffener for various side panel SP174-001 and SP177-001 this QA noted.

Bay 4: Tower Diaphragm
This QA observed three tower diaphragm flanges were having issues fitting to diaphragm plates. One flange marked NSD1-SA335 was having problem getting into (inside) the plate though three of the welds of this flange are only tack welded, ZPMC could still adjust the inside length of the flange. The other flange marked SA286 was having 8.0mm root gap almost all around the diaphragm plate. The third flange marked SSD1-SA335 has two sides (curves) of the diaphragm plate having 9.0mm root gap. Per ABF QA Inspector CK Chan, they are waiting for ZPMC proposal for the rectification of this unacceptable flange gap and not to fit flange into the plate. See photo below.

Bending of heavy plates marked P1082(N)-1 4/28(D),and P53(E)-1 5/1(A) for tower diaphragm flanges using oxy-acetylene with thermal heat input of less than 650 degree C and following procedure HSR1(T)-2054 and HSR1(T)-2055 respectively.

Bay 7: OBG - Floor Beam Sub Assembly
The QA Inspector randomly observed ZPMC welder Duan Xiu Zhi ID Number 050502, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2221-B-L2c-S-1, to weld the fill pass on plate butt splice of floor beam FB029-001-122. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing, monitoring weld parameters. Weld parameters appeared to comply with contract requirements.

QA Inspector J. Lizardo randomly observed ZPMC qualified welder Zhang Qingquan ID #044774 groove welding fill pass on (flange to web plate) tee joint. Mr. Zhang was observed welding in the 2G (horizontal) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic at floor beam FB010-001-045. QA Inspector Lizardo observed the ZPMC QC CWI Inspector Huang Wen Pang verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS).

FCAW fillet welding (2F) was observed on stiffener to web plate on floor beam sub-assembly FB016-001-weld

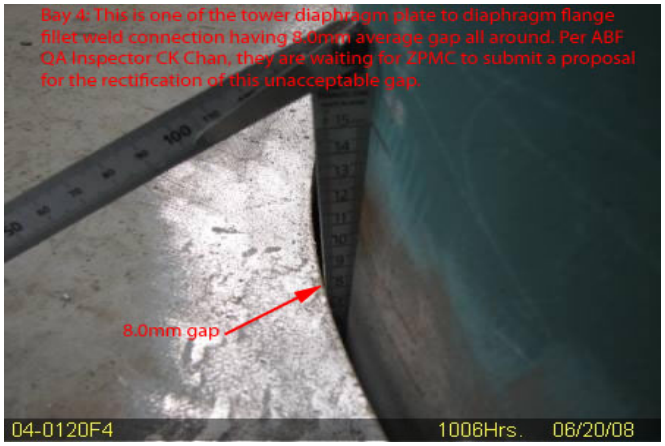
joints 013 and 014. ZPMC welders working on these were identified as Liu Long Xian ID# 044786 and Zhuo Jibo ID #055564. ZPMC CWI Hu Wei Qing was noted monitoring the parameters. Tack welding/fit-up was continuing on flange to web plate of floor beam FB011-008-014 by ZPMC welder Luo Man Lin ID #044844 using electrode TL-508. During tack welding/fit-up of these sub-assemblies, paint coating was removed, close and tight gap noted and preheating was used. SMAW fillet welding 2F/3F was also noted on 8.0mm end plate cap to 300mm x 300mm hollow steel diagonal brace frame for floor beam FB006-029-001/002 by ZPMC welder Li Wen Guo utilizing WPS-B-P-2112 and WPS-B-P-2113.

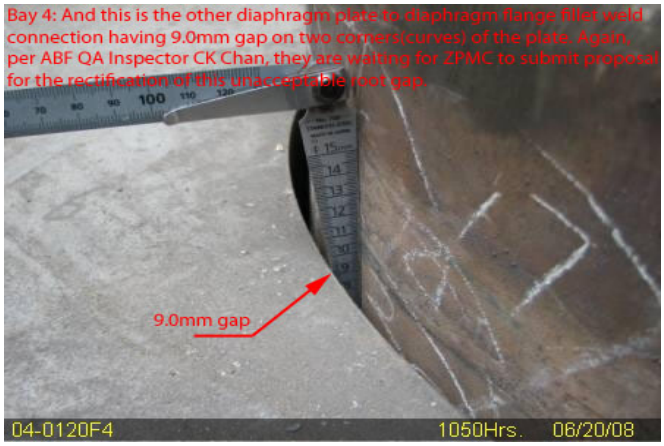
Bay 8: Tower Diaphragm

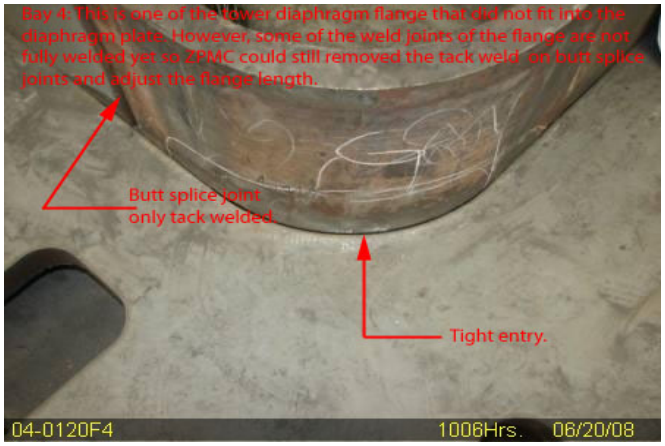
The QA Inspector randomly observed ZPMC welder Xu Pei Pei ID Number 050323, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-3221-B-U3c-S-1, to weld the cover pass on plate butt splice of Tower Diaphragm WSD1-SA301A/B-11B/12B. The QA Inspector randomly observed ZPMC CWI Lvliqing, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 618 amps, 30.2 volts with a travel speed of 475 mm per minute. Weld parameters appeared to comply with contract requirements.

Summary of Conversations:

No significant conversation ocurred today.







Comments

WELDING INSPECTION REPORT

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This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer